

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (original) A data transfer driver for a data storage device including recording media having one or more recording surfaces, one or more data transducer heads positionable relative to the recording surfaces by a head position actuator structure operating within a head position servo loop, the data transfer driver comprising:

5 one or more head interfaces, each head interface electrically connected to a transducer head for controlling the transducer head for data read and/or write operations; a mode controller electrically connected to each head interface, for controlling the operation of each head interface for selectively reading data from at least one recording surface via at least one transducer head while writing data to at least one recording
10 surface via at least one transducer head.

2. (currently amended) The data transfer driver of claim 1 wherein the mode controller further controls the operation of each head interface for selectively: reading data from at least one recording surface via at least one transducer while writing data to a plurality of recording surfaces via a plurality of transducer heads ~~at least one recording surface via at least one transducer head, and/or reading data from at least one recording surface via at least one transducer head.~~

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3. (original) The data transfer driver of claim 1 wherein the mode controller controls the operation of the head interfaces based on configuration information, wherein the configuration information includes data transfer mode and transducer head selection information.

4. (cancelled)

5. (original) The data transfer driver of claim 1 further comprising a control interface connected to the mode controller, the control interface for receiving configuration information wherein the mode controller controls the operation of the head interfaces based on the configuration information.

6. (original) The data transfer driver of claim 1 wherein each head interface comprises:

a read circuit for controlling the corresponding transducer head to read data from a recording surface, and

5 a write circuit for controlling the corresponding transducer head to write data to a recording surface.

7. (currently amended) The data transfer driver of claim 1 wherein the data storage device includes a plurality of data transducer heads, the data transfer driver further comprising a plurality of head interfaces corresponding to the data transducer

heads, each head interface being electrically connected to a corresponding transducer
5 head for controlling that transducer head for data read and/or write operations; and
wherein the mode controller is further electrically connected to the plurality of the
head interfaces, for controlling the operation of the head interfaces based on
configuration information for selectively: ~~(i) writing data to one or more recording~~
~~surfaces, (ii) reading data from at least one recording surface the data disk, and/or (iii)~~
10 reading data from at least one recording surface while writing data to ~~one or more a~~
plurality of recording surfaces.

8. (original) The data transfer driver of claim 7 wherein the configuration
information includes transducer head selection and data transfer mode information.

9. (original) The data transfer driver of claim 7 wherein each head interface
comprises:

a read circuit for controlling the corresponding transducer head to read data from
the data disk, and
5 a write circuit for controlling the corresponding transducer head to write data to
the data disk.

10. (original) The data transfer driver of claim 7 wherein the mode controller
controls the operation of the head interfaces based on the configuration information for
writing data to a recording surface via a transducer head while reading data from the
recording surface via that same transducer head.

11. (original) The data transfer driver of claim 7 wherein the mode controller controls the operation of the head interfaces based on the configuration information for writing data to at least one recording surface via at least one transducer head while reading data from at least one recording surface via at least another transducer head.

12. (original) The data transfer driver of claim 1, wherein the data storage device comprises a disk drive and the recording media comprises one or more magnetic data disks.

Claims 13-29 (cancelled).

30. (original) A disk drive comprising:

recording media having one or more recording surfaces,

one or more data transducer heads,

a head position actuator structure for positioning the heads relative to the

5 recording surfaces, operating within a head position servo loop;

a preamplifier comprising:

one or more head interfaces, each head interface electrically connected to

a transducer head for controlling the transducer head for data read and/or write operations;

10 a mode controller electrically connected to each head interface and responsive to the servo controller, for controlling the operation of each head interface based on configuration information for selectively reading data from at least one

recording surface via at least one transducer head while writing data to at least one recording surface via at least one transducer head; and

- 15 a drive controller configured for controlling the head position actuator structure to position the heads relative to the recording surfaces, and for providing the configuration information to the preamplifier for selectively reading data from at least one recording surface via at least one transducer head while writing data to at least one recording surface via at least one transducer head.

31. (cancelled)

32. (original) The disk drive of claim 30 wherein the configuration information includes data transfer mode and transducer head selection information.

33. (cancelled)

34. (original) The disk drive of claim 30 wherein the preamplifier further comprises a control interface connected to the mode controller, the control interface for receiving configuration information from the drive controller wherein the mode controller controls the operation of the head interfaces based on the configuration information.

35. (original) The disk drive of claim 30 wherein each head interface comprises:
a read circuit for controlling the corresponding transducer head to read data from a recording surface, and

5 a write circuit for controlling the corresponding transducer head to write data to a recording surface.

36. (original) The disk drive of claim 30, wherein the mode controller controls the operation of the head interfaces based on the configuration information for writing data to a recording surface via a transducer head while reading data from the recording surface via that same transducer head.

37. (original) The disk drive of claim 30, wherein the recording media includes one or more data disks having recording surfaces, the disk drive further including a reference disk having a reference pattern thereon, wherein the transferred reference pattern comprises servo clock information providing transducer head circumferential relative position information, and servo position information providing transducer head radial relative position information;

10 wherein the drive controller is further configured for controlling the actuator and the preamplifier in a servo control loop, for reading the reference pattern from the reference disk via a transducer head and using the read servo clock and the servo position information to position and maintain one or more transducer heads on one or more said data disk recording surfaces while writing final servo patterns onto said one or more data disk recording surfaces.

38. (original) The disk drive of claim 37, wherein the drive controller controls the actuator and the preamplifier for:

reading the reference pattern from the reference disk via a transducer head and
using the read servo clock and the servo position information to position and maintain
5 one or more transducer heads on one or more said data disk recording surfaces;
while at the same time generating and writing final servo patterns onto said one or
more data disk recording surfaces.

39. (original) The disk drive of claim 37, wherein the drive controller further
comprises:

a pattern generator for generating the final servo patterns for writing to the
recording surfaces; and
5 a servo controller for controlling the actuator and the preamplifier in a servo
control loop, for reading the reference pattern from the reference disk via a transducer
head and using the read servo clock and the servo position information to position and
maintain one or more transducer heads on one or more said data disk recording surfaces
while writing the final servo patterns onto said one or more data disk recording surfaces.

Claim 40 (currently amended): The data transfer driver of claim 1, wherein the
mode controller further controls the operation of each head interface for selectively
reading data from at least one recording surface ~~via at least one transducer head~~ while
simultaneously writing data to a plurality of data recording surfaces ~~at least one recording~~
5 ~~surface via at least one transducer head.~~

Claim 41 (currently amended): The disk drive of claim 30, wherein the mode controller further controls the operation of each head interface for selectively reading data from at least one recording surface via at least one transducer head while simultaneously writing data to a plurality of data recording surfaces via a plurality of transducer heads at
5 ~~least one recording surface via at least one transducer head.~~

Claim 42 (new): A data transfer driver for a data storage device including recording media having one or more recording surfaces, one or more data transducer heads positionable relative to the recording surfaces by a head position actuator structure operating within a head position servo loop, the data transfer driver comprising:

5 one or more head interfaces, each head interface electrically connected to a transducer head for controlling the transducer head for data read and/or write operations;

a mode controller electrically connected to each head interface, wherein the mode controller controls the operation of the head interfaces based on configuration information including:

10 read mode, wherein the mode controller controls the operation of the head interfaces for selectively reading data via at least one transducer head;

write mode, wherein the mode controller controls the operation of the head interfaces for selectively writing data via at least one transducer head;

servowrite mode, wherein the mode controller controls the operation of
15 the head interfaces to selectively writing data via a plurality of transducer heads; and

read-while-write (RWW) mode, wherein the mode controller controls the operation of the head interfaces for selectively reading data from at least one recording

surface via at least one transducer head while writing data to at least one recording surface via at least one transducer head.

Claim 43 (new): A disk drive comprising:

recording media having one or more recording surfaces,

one or more data transducer heads,

a head position actuator structure for positioning the heads relative to the

5 recording surfaces, operating within a head position servo loop;

a preamplifier comprising:

one or more head interfaces, each head interface electrically connected to a transducer head for controlling the transducer head for data read and/or write operations;

10 a mode controller electrically connected to each head interface and responsive to the servo controller, for controlling the operation of each head interface based on configuration information for selectively reading data from at least one recording surface via at least one transducer head while writing data to at least one recording surface via at least one transducer head; and

15 a drive controller configured for controlling the head position actuator structure to position the heads relative to the recording surfaces, and for providing the configuration information to the preamplifier for selectively reading data from at least one recording surface via at least one transducer head while writing data to at least one recording surface via at least one transducer head,

20 wherein the configuration information includes data transfer mode and
transducer head selection information comprising:

 read mode, wherein the mode controller controls the operation of
the head interfaces for selectively reading data via at least one transducer head;

 write mode, wherein the mode controller controls the operation of
25 the head interfaces for selectively writing data via at least one transducer head;

 servowrite mode, wherein the mode controller controls the
operation of the head interfaces to selectively writing data via a plurality of transducer
heads; and

 read-while-write (RWW) mode, wherein the mode controller
30 controls the operation of the head interfaces for selectively reading data from at least one
recording surface via at least one transducer head while writing data to at least one
recording surface via at least one transducer head.